Towsif Alam Chowdhury

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Education

North South University Dhaka, Bangladesh
Bachelor of Science in Computer Science and Engineering Jan 2017 – Apr 2021
CGPA - 3.60/4.00 | **Distinction** - Cum Laude | **Specialized Trail** - Artificial Intelligence
Thesis: *Recycle Oldest Memories with Recent Selective Experiences to Improve Learning* [PDF Link]

Publications

Patent

- Hossain, Md. I., **Chowdhury, T. A.**, Polin, Md. Z. H., & Mahmud, S. (2025). **Method and apparatus for providing MCPTT service**. U.S. Patent US20250056190, February 13, 2025; WIPO Patent WO2025033863, February 13, 2025; KIPO Patent KR1020250021850, February 14, 2025.

Journal Paper

- Youme, S. K., **Chowdhury, T. A.**, Ahamed, H., Abid, M. S., Chowdhury, L., & Mohammed, N. (2021). **Generalization of Bangla Sign Language Recognition Using Angular Loss Functions**. IEEE Access, 9, 165351–165365. doi:10.1109/ACCESS.2021.3134903

Conference Paper

- Youme, S. K., Abid, M. S., **Chowdhury, T. A.**, Ahamed, H., & Siddique, S. (2022). **Local Climate Zone Mapping Using Clustering Algorithms: A Case Study of Dhaka, Bangladesh**. IGARSS 2022 - 2022 IEEE International Geoscience and Remote Sensing Symposium, 3139–3142. doi:10.1109/IGARSS46834.2022.9883206

Experience

Samsung R&D Institute Bangladesh Sep 2022 – Present
Patent Engineer Dhaka, Bangladesh

- Collaborating with engineers and researchers to identify novel, non-obvious inventions, ensuring technical feasibility and commercial viability
- Conducted prior art searches and provided strategic guidance on intellectual property protection in emerging technologies
- Reviewed and assessed multiple innovation disclosures, leading to the publication of seven patents across various patent offices

Department of Electrical and Computer Engineering, North South University May 2021 – May 2022
Research Assistant Dhaka, Bangladesh

- Secured a competitive university research grant to explore improvements in reinforcement learning through memory optimization techniques
- Proposed and developed a novel reinforcement learning algorithm incorporating double replay memory, enabling the agent to balance short-term adaptability with long-term event retention

Department of Electrical and Computer Engineering, North South University Mar 2020 – Jan 2022
Teaching Assistant Dhaka, Bangladesh

- Led tutorials and discussion sections, held weekly office hours, and provided academic support to students
- Graded assignments and exams, and prepared answer keys and supplementary materials to aid instruction

Department of Mathematics and Physics, North South University Oct 2021 – Apr 2022
Lab Instructor Dhaka, Bangladesh

- Independently conducted undergraduate lab classes and provided academic consultation to students
- Assessed student performance through evaluation and grading of lab work and reports

Grant

High-performance, Less Resource-intensive Deep Reinforcement Learning Methods for Applications in Autonomous Agents and Search and Rescue Robotics
Name of Grant: CTRG 2021-2022 | **Granting Body:** North South University, Dhaka, Bangladesh
Grant Amount: BDT 500,000 | **Role:** Research Assistant

- Conducted research on deep reinforcement learning algorithms, focusing on resource efficiency and performance optimization for use in autonomous systems and robotics
- Contributed to algorithm design, implementation, and analysis

Awards

Excellence Award, Samsung R&D Institute Bangladesh (2024)
Recognized for outstanding contributions to achieving Samsung R&D Institute Bangladesh's 2024 patent target through innovative research and collaboration with cross-functional teams.

Projects

Catastrophic Forgetting in Reinforcement Learning
North South University | Spring 2020 *(Team of 4)* | [GitHub Link]

- Developed a double replay memory architecture inspired by cognitive learning systems, enhancing learning efficiency in deep reinforcement learning
- Implemented a loss selection strategy for prioritizing significant experiences, improving sampling efficiency, and reducing overfitting
- Secured a university grant for the project

Bangla Hand Sign Recognition
North South University | Fall 2019 *(Team of 3)* | [GitHub Link]

- Developed and evaluated a deep learning model for Bangla Sign Language (BdSL) recognition
- Implemented the ArcFace angular margin loss function, noting its aim to increase inter-class distance and reduce intra-class distance for classification
- Conducted a comparative analysis of angular margin loss functions against Softmax loss

Technical Skills

Programming languages: Python, C

Libraries: Pytorch, Tensorflow, Pandas, Matplotlib

Research domains: Machine Learning, Deep Learning, Computer Vision, Reinforcement Learning

Language Proficiency

IELTS: Overall band score – 8.0 (Listening 8.5; Reading 9.0; Writing 7.0; Speaking 7.0)

References

1. Dr. Shahnewaz Siddique, Associate Professor
Department of Electrical and Computer Engineering, North South University
Email: shahnewaz.siddique@northsouth.edu

2. Dr. Nabeel Mohammed, Associate Professor
Department of Electrical and Computer Engineering, North South University
Email: nabeel.mohammed@northsouth.edu

3. Nizam Khan, Principal Engineer
Innovation, Research, and IP Management, Samsung R&D Institute Bangladesh
Email: nizam.khan@samsung.com